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RUNNING HEAD: Bidirectional Relations, Political Violence, Adolescent Adjustment

Examining Bidirectional Pathways between Exposure to Political Violence and
Adolescent Adjustment in Northern Ireland

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Abstract

Objective. Research on social ecologies of political violence has been largely confined to cross-sectional tests of the impact of political violence on child adjustment, limiting perspectives on more nuanced causal pathways, including tests of reciprocal relations between exposure to political violence and child adjustment. Based on a four-waves of longitudinal, this study breaks new ground in assessing bidirectional relations between exposure to political violence in the form of experience with sectarian antisocial behavior and adolescents' adjustment problems.

Method. The study included 999 mother-adolescent dyads selected from working-class neighborhoods in Belfast ranked in the bottom quartile in terms of social deprivation in Northern Ireland, with approximately 35-40 families recruited to participate from each neighborhood. Across the four annual waves of data, adolescents (52% female) were 12.18 ($SD=1.82$), 13.24 ($SD=1.83$), 13.62 ($SD=1.99$), and 14.66 ($SD=1.96$) years old. Cross-lagged path models were tested through R package lavaan with full information maximum likelihood. **Results..** Reflecting a reciprocal pathway, adjustment problems related to higher reports of experience with sectarian antisocial behavior one year later. Boys' experience with sectarian antisocial behavior related to greater adjustment problems one year later; but this reciprocal path did hold for the girls.

Conclusions. These findings offer promising directions towards better modeling of dynamic relations between exposure to political violence and adolescent adjustment over time.

Keywords: political violence, child and adolescent adjustment, bidirectional pathways, community violence, gender differences

Examining Bidirectional Pathways between Exposure to Political Violence and
Adolescent Adjustment over Time in Northern Ireland

There is increasing concern worldwide with regard to the impact of political violence on children's adjustment and well-being (Betancourt & Khan, 2008; Boxer et al., 2013; Ladd & Cairns, 1996). Research has repeatedly documented there is an elevated risk for adjustment problems among children and adolescents living in contexts of political violence (Betancourt, Meyers-Ohki, Charrow, & Tol, 2013; Betancourt et al., 2014; Cummings, Goeke-Morey, Schermerhorn, Merrilees, & Cairns, 2009; Dubow, Huesmann, and Boxer, 2009; Jordans, Tol, Komproe, & De Jong, 2009). These findings call attention to the significant challenges for children's adjustment posed by political violence and the urgency for effective intervention for child adjustment problems. The urgency for intervention is heightened if one considers that children's adjustment problems may not only pose problems for children's well-being but also contribute to the continuation or even escalation of political violence (Taylor, Merrilees, Goeke-Morey, Shirlow, & Cummings, 2016).

Studies on the interrelations between youth adjustment and exposure to political violence have typically made the implicit assumption that the direction of causation flows in one direction. That is, the conceptualization adopted in most research is that contexts of political violence, for example, experience with such violence results in elevated adjustment problems in children. Moreover, the great majority of research studies in this area are cross-sectional (for discussion, see Cummings et al., 2014), so that the direction of interrelations between exposure to political violence and child adjustment problems cannot be determined. Thus, in the absence of longitudinal research, three possibilities for the directions of effect between political violence and child adjustment remain: (a) exposure to political violence is causally related to child

adjustment problems, (b) child adjustment problems are causally related to exposure to political violence, and (c) the direction of causal effects flows both ways.

Exposure to community violence has been associated with violence by adolescents (see review in Margolin & Gordis, 2000). With regard to political violence, the implicit model in many studies is that exposure to such violence unilaterally causes child adjustment problems; this approach provides a limited perspective on the possible risk factors that may lead to youth exposure to political violence. For example, adjustment problems in youth in contexts of political violence (i.e., aggression), has been linked to participation in sectarian antisocial behavior (Taylor et al., 2016), which is also linked with exposure to such violence. It follows that adjustment problems, especially in adolescence, may potentially be a cause as well as a consequence of exposure to political violence. Thus, in addition to being negatively affected by contexts of political violence, youth behaviors may put themselves at risk for greater exposure to political violence. Moreover, overall adjustment problems in youth, including both externalizing and internalizing problems, may be associated with the greatest risk for exposure to political violence.

Exploring these possible pathways of the impact of exposure to political violence is essential for more adequate conceptual models and to inform more robust prevention and intervention efforts. For example, addressing the rates and extent of adolescent exposure to political violence may provide an additional avenue for immediate intervention in on-going intergroup conflict as well as a means of ameliorating adolescent adjustment problems. Another valuable contribution may be to shape long-term prevention efforts. For example, reducing adjustment problems in youth in contexts of political violence may have the effect of decreasing their future exposure to such violence.

However, the study of the possible direction of effects between exposure to political violence and adolescent adjustment places significant demands on the type of research design needed to make adequate progress on these issues. Minimally, the collection and analysis of longitudinal data is essential to be able to cogently address these questions. Longitudinal research on this topic is rare, with few studies prospectively examining changes in the social ecological environment (e.g., political violence in the community) and adolescents' adjustment over time. Exposure to political violence is operationalized as experience with sectarian antisocial behavior (SAB) in the community in the present study. In part, the relative dearth of longitudinal research may be due to the immense practical and methodological challenges (e.g., funding, staffing, institutional support) for working with affected youth in these environments. Turbulent contexts of political violence create challenges for participant retention; minimizing losses due to attrition is essential for the interpretation of results in longitudinal research. Moreover, compared to shorter term longitudinal analyses (i.e., three or two waves), basing these tests on four waves of data collected yearly strengthens the quality of the analyses by (a) reflecting the relations between exposure to political violence and adolescent adjustment over a longer time span, and (b) further helping to ensure model identification. Thus, there is a need to broaden the conceptualization of political violence to include assessments of experience with SAB, study the bidirectional relations with adolescent development, and carry out multi-wave longitudinal research in these settings, which poses substantial methodological and practical challenges.

Another key issue for this study is to explore gender differences in the relations between exposure to political violence and adolescent adjustment. For both boys and girls, adjustment problems have been found to be negatively affected by experience with SAB (Cummings et al.,

2011; Taylor et al., 2016). However, boys have been found to be more likely than girls to engage in aggressive behavior or to actively participate in interethnic conflict and violence in contexts of political violence (Ajdukovic & Biruski, 2008; Barber, 2008; Dubow et al., 2010; Shirlow & Muragh, 2006; Taylor et al., 2016). Accordingly, given the more disruptive nature of boys' adjustment problems, for example, reflected in higher levels of aggressive behavior or participation in sectarian antisocial behavior (Taylor et al., 2016), their behavior might be expected to be more likely than girls' behavior to be related to experience with SAB over time. Although girls' adjustment problems may well factor in experience with SAB, for example, individuals with anxiety problems may be hypervigilant in seeking out indicators of threat (Davies, Harold, Goeke-Morey, & Cummings, 2002), the less aggressive nature of girls' adjustment problems in these contexts may reduce the likelihood of the direction of effects from experience with SAB to total adjustment problems for girls. Thus, bidirectional relations are hypothesized for boys. However, there is less apparent basis for expecting bidirectional relations for girls, especially prospective relations between experiencing SAB and total adjustment problems in girls. Finally, from a developmental perspective, bidirectional relations are expected to emerge with the onset of adolescence. Adolescents are more likely to become exposed or actively involved in community conflict and violence. Accordingly, this study focuses on adolescents between early and middle adolescence.

This study of bidirectional relations takes place in Northern Ireland, an important context for examining relations between political violence and child adjustment (Cairns & Dawes, 1996). Contemporary research on SAB between Protestants and Catholics has typically focused on the period between 1968 and 1998, known as the "Troubles" (see Cairns & Darby, 1998, for a brief history). However, despite the 1998 Belfast agreement, substantial sectarian violence continues,

especially in socially deprived communities in Belfast (e.g., see Police Service of Northern Ireland, Central Statistics Branch, Operational Support Department, 2006/2007).

The current study thus is concerned with prospectively exploring bidirectional relations between experience with SAB and adolescent adjustment problems in socially deprived areas in Belfast, Northern Ireland. Tests were based on cross-lagged path models. Cross-lagged path models employ the underlying time-ordered nature of panel data to examine the bi-directional relations between constructs (Newsom, 2015). The analyses incorporated both mother and youth reports to reduce possible inflation of relations due to the same reporter providing data on both constructs. Moreover, towards increasing the likelihood of detecting bidirectional relations, total adjustment problems in youth are included in analyses. The hypothesis is that bidirectional relations will be found in the sample studied. In addition, multi-group analyses for gender will be conducted to test these pathways separately for boys and girls. In the context of these analyses, the hypothesis is that bidirectional relations will be found for boys. The test of whether bidirectional relations will be found for girls is exploratory.

Method

Participants

The analyses included 999 mother-adolescent pairs that participated in at least one of four waves of annual data collection (2006-2010) as part of a larger project on the impact of political violence on children and families in Belfast, Northern Ireland. Over the course of the four waves, child participants (52% female) were 12.18 ($SD=1.82$), 13.24 ($SD=1.83$), 13.62 ($SD=1.99$), and 14.66 ($SD=1.96$) years old. Mothers were recruited based on the high prevalence of female-headed households; in our sample, two-thirds came from single mothers (e.g., separated, divorced, widowed, or having never married), and the remaining third lived in homes in which

the parents were married or living as married. Approximating the traditional demographics of Northern Ireland, all participants were White and 62% identified as coming from a Protestant background while 38% identified as Catholic. Catholic youth reported more experience with SAB in wave 3; otherwise there was no difference in rates of exposure between Catholic and Protestant youth.

Across time, there was relatively good retention, ranging from 82% from wave 1 to 2, to 76% from wave 2 to 3, and to 80% from wave 3 to 4. Retention was at the higher end of other longitudinal studies with at-risk populations in settings of community and political conflict, ranging from 50% to 86% (e.g., Betancourt et al., 2010; Browning, Burrington, Leventhal, & Brooks-Gunn, 2008; Kronenberg et al., 2010). The relatively high retention rates may have reflected, in part, our strategy of contacting families at least three times for each yearly wave and other measures, such as including annual letters reminding participants we would be calling again ahead of each wave.

For this paper, attrition analyses were conducted to examine if there were any significant differences between those that returned at a later wave and those that did not. From wave 1 to all later time points, the only significant difference was that children who reported more total problems at wave 1 were less likely to return at wave 4 ($t(690) = -2.98, p < .01$; $M_{\text{attrited}} = 6.15$ ($SD=.37$); $M_{\text{returned}} = 5.55$ ($SD=.27$)). Mothers who reported higher child experience with SAB at wave 2 were less likely to return at both wave 3 ($t(570) = 4.00, p < .001$; $M_{\text{attrited}} = 3.77$ ($SD=8.06$); $M_{\text{returned}} = 1.52$ ($SD=4.77$)) and wave 4 ($t(570) = 5.05, p < .01$; $M_{\text{attrited}} = 3.85$ ($SD=.8.35$); $M_{\text{returned}} = 1.26$ ($SD=3.94$)). However, higher risk dyads did not always have a higher chance of dropping out. That is, only one comparison between waves was significant for total

problems and all other comparisons between waves were not significant for mother report of SAB.

Procedure

Prior to the initiation of the study, an expert demographer in Northern Ireland identified a series of Belfast neighborhoods that were targeted during recruitment. The neighborhoods all met the criteria of being (a) interfaced, (b) low ranking on the multiple deprivation scale (indicating high levels of deprivation on a Deprivation Index, including lower socio-economic status (see Cummings et al., 2011), and (c) have variation in history and recent levels of sectarian violence. Interfaced neighborhoods are areas that are homogenous by Catholic/Protestant identity, that are directly next to or alongside of an area that was from the other group. These interfaced areas are often physically divided by ‘peace’ walls and/or major roads that maintain relative isolation between the two communities. The neighborhoods selected were relatively homogeneous on socioeconomic status as well as Catholic/Protestant identification. Thus, the families who participated were largely representative of their recruitment areas of background and socioeconomic status. In Northern Ireland, neighborhood socio-economic status is tracked with a multiple deprivation ranking that considers factors such as employment status of residents, home ownership, and access to basic services for a geographic area. All study neighborhoods ranked in the bottom quarter of social deprivation across all 582 electoral wards in Northern Ireland (NINIS, 2011; NISRA, 2011). Finally, although all study areas were relatively similar in terms of interface and multiple-deprivation, there was variation in sectarianism. For example, the rates of historical political deaths that occurred during the Troubles was used alongside the annual reports of sectarian incidents to the Police Service of Northern Ireland (PSNI) to generate variation across these two types of sectarian antisocial behavior across the areas.

At the initiation of the study, community leaders in each area were identified and contacted to inform them of the upcoming research. A similar letter was then delivered to families in the areas and was followed-up by door-to-door recruitment, consistent with local practices, by trained staff of an established market research firm in Belfast. The research staff emphasized the voluntary nature of the study and the confidentiality of participant responses. When possible, the same staff revisited each area on subsequent years to maintain connections and rapport with the participating families. Due to the fact that no information was collected from families who declined to participate initially, it is not possible to calculate selection effects.

In each study area, approximately 35-40 families were recruited to participate. Eligibility included having a child living at home in the target age range of 10 to 17 years old. Exclusion criteria included that participating families had to be from one of the two communities in Northern Ireland (i.e., Catholic or Protestant) and that only one child from each household could participate. When families had more than one child in the target age range; the youngest child interested was selected. In this target age range, youth may have experience with sectarianism and they can reliably report on their own adjustment (Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2009; Lynch, 2003).

After providing informed consent and assent, respectively, mothers and youth responded to questionnaires that were administered through face-to-face interviews in the participants' homes by a trained member of a local market research firm. The interviews with mothers and children lasted approximately 60 and 30 minutes, respectively. Families were compensated £20 at waves 1 and 2 and £40 at waves 3 and 4 for their time. All procedures were approved by institutional review boards at the participating universities.

Measures

Sectarian antisocial behavior (SAB). This scale was specifically developed in this context to assess the degree to which young people were exposed to sectarianism (Goeke-Morey et al., 2009), or antisocial behaviors between the Catholics and Protestants (Taylor et al., 2011). For this scale, mothers reported on child exposure to 12 sectarian events such as *stones or objects thrown over walls, name calling by people from the other community, and deaths or serious injury caused by the other community* over the previous three months. In the context of adolescent report of adjustment problems, use of mother report of child experiences with SAB minimizes possible inflation of results due to common method variance if adolescent were the only respondents. Responses were rated on a 5-point Likert scale (0=not in the last 3 months to 4=every day). Higher scores indicated greater recent experience with SAB and the scale had good internal consistency across waves (Cronbach's $\alpha = .93, .96, .95$, and $.95$, respectively). Although parents and youth may provide discrepant reports on the youth's report of exposure to community violence (Goodman, De Los Reyes, & Bradshaw, 2010), mother and adolescent report on the SAB have been found to be moderately correlated ($r=.46$, Cummings et al., 2010).

Adjustment problems (SDQ). To assess overall adjustment, the total problems sum of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) was used. This scale has been used previously in the UK with good psychometric properties and predictive validity for adjustment problems in community samples (Goodman & Scott, 1999). Adolescents reported on 20 items that included subscales on emotion (e.g., *unhappy, down-hearted or tearful*), peer (e.g., *being bullied or picked on*), conduct problems (e.g., *get angry, lose temper*) and hyperactivity (e.g., *restless, cannot sit still*). Overall higher scores reflected more adjustment problems with adequate internal consistency (Cronbach's $\alpha = .77, .76, .73$, and $.73$, respectively). The measure of overall adjustment was used, rather than subscales separately for emotions, peer relations,

conduct problems and hyperactivity, to best reflect youth's overall potential to influence their own future risk.

Results

Table 1 reports the means, standard deviations, and bivariate correlations for all manifest variables for the constructs of interest, including mother-report of child experience with SAB youth-report of adjustment problems. Path analyses were conducted in R by using package lavaan with full information maximum likelihood (FIML). FIML is shown to produce unbiased and efficient estimates of the parameters of interest if data are missing at random (MAR) (Enders & Bandalos, 2001). Although internal tests of MAR are not possible (Abayomi, Gelman, & Levy, 2008; Schafer & Graham, 2002), missing data can be considered random conditional based on participant characteristics related to their missingness and available data in these characteristics at the time of analysis (i.e., the observed SAB and total problem scores) (Donders, van der Heijden, Stijnen, & Moons; 2006). For each set of analyses, model fit was evaluated using the comparative fit index (CFI), the root mean square residual (RMSEA), and the Akaike Information Criterion (AIC). The cut-off criterion for the CFI was ≥ 0.90 (Bentler, 1990). The cut-off criterion for RMSEA was 0.06 (Hu & Bentler, 1999). A smaller AIC indicates better model fit.

First, the bidirectional influences of the manifest variables of youth experience with SAB and SDQ total problems were tested over four time points (Model 1, Figure 1).¹ The model allowed for within-wave correlations between the two variables that were unconstrained across waves. It also included auto-regressive controls; three parameters were estimated for the paths of one year, two, and three years prior for each of the main variables separately. Finally, the bidirectional paths with a one-year lag were modeled (i.e., wave 1 SAB predicting wave 2 SDQ

total problems, and wave 1 SDQ total problems predicting wave 2 SAB, etc.). To ensure model identification, some constraints of the coefficients needed to be made. A stationary auto-regressive model was specified. The lag-1 auto-regressive paths were constrained to be equal in SAB and SDQ respectively, the lag-2 auto-regressive paths were constrained to be equal in SAB and SDQ respectively, and the lag-1 bidirectional paths were constrained to be equal.²

The overall fit for the model was acceptable (CFI = .93; RMSEA = .06; AIC=32682.73). Although the χ^2 test indicates a poor fit ($\chi^2(16) = 73.36, p < .05$), it was not surprising given the sensitivity of χ^2 to the large size of our sample (Gerbing & Anderson, 1985). As depicted in Figure 1 and Table 2, the auto-regressive paths were significant for sectarian antisocial behavior (1 year: $\beta = .25, p < .001$; 2 year: $\beta = .33, p < .001$; 3 year: $\beta = .11, p < .05$) and total adjustment problems (1 year: $\beta = .34, p < .001$; 2 year: $\beta = .15, p < .001$; 3 year: $\beta = .25, p < .001$). With regard to the primary paths of interest, greater experience with SAB predicted higher levels of SDQ total problems at the next time point ($\beta = .07, p < .001$). Moreover, SDQ total problems significantly predicted more experience with SAB one year later across four waves ($\beta = .09, p < .01$). The standardized coefficients suggested that the bidirectional effect size of experience with SAB and SDQ total problems are relatively equal.

Second, given our interest in possible gender differences in these pathways, and based on the preliminary analyses which suggested that the relations among the variables of interest may vary by gender, a multiple group model was then fit to the data (Model 2, Figure 2). This approach used the same overall structure as the previous model, but did not constrain the auto-regression or bidirectional paths to be the same across male and female adolescents. This multiple group model was also an acceptable fit to the data, except for the χ^2 test ($\chi^2(32) = 96.63, p < .05$; CFI = .93; RMSEA = .06; AIC=32605.64). In comparing overall (Model 1) and

multiple-group (Model 2) models, the smaller AIC index indicated that multiple group model was a better model (Akaike, 1974, 1987). An interesting pattern emerged when the bidirectional pathways were estimated separately by gender (see Table 2). For boys, the one-year lagged bidirectional paths were both significant; higher levels of experience with SAB predicted more SDQ total problems ($\beta_{boy} = .10, p < .001$), and higher SDQ total problems related to more experience with SAB a year later ($\beta_{boy} = .09, p < .05$). For girls, however, the pattern of bidirectional effects was not found. That is, there was a non-significant link from experience with SAB to SDQ total problems one year later ($\beta_{girl} = .04, ns$); yet, the impact of adjustment problems was positively related to greater experience with SAB at the next time point ($\beta_{girl} = .10, p < .01$). In terms of effect sizes, the standardized coefficients indicate that the relative influence of the crossed-lagged parameters are similar in the link of SDQ total problems on experience with SAB a year later for boys and girls, while different in the link of experience with SAB with total problems on experience a year later (Table 2). This pattern of findings suggested there are complex relations between the experiencing sectarian violence and adjustment problems for boys and girls growing up in Belfast.

Discussion

Based on a four-wave longitudinal research design, these findings supported bidirectional relations between experience with SAB and boys' adjustment problems. That is, not only did adolescents' experience with SAB relate to their greater adjustment problems one year later, but adjustment problems were also associated with higher levels of experience with SAB over time. The latter finding breaks new ground in the study of dynamic pathways related to adolescent adjustment in the social ecology of the conflict in Northern Ireland. Consistent with expectations, both the bidirectional influences were found to hold true for boys. However, experience with

SAB was not related to adjustment problems in girls. Instead, girl's adjustment problems were related to their greater experience with SAB a year later.

The findings suggest that models that solely measure the pathway from experience with SAB to adolescent adjustment problems may not comprehensively reflect the directions of these relations in settings of intergroup conflict. Among the limited longitudinal studies on this topic, the evidence for the pathway from political violence to child and adolescent adjustment problems has been reported across different contexts (Betancourt et al., 2013; Dubow et al., 2009; Jordans, Tol, Komproe, & De Jong, 2009). However, the present results are not unique in suggesting the need for more nuanced causal models for adolescent adjustment outcomes. The finding that adolescent adjustment problems related to later experience with SAB is consistent with an often-reported speculation that behavior problems may contribute to later exposure to political violence. This study provides empirical support for this notion.

With regard to gender, the reciprocal relations were found for boys, whereas for girls only the link between adjustment and later experience with SAB was significant. That is, contrary to the findings of other studies, SAB was not linked with total adjustment problems in girls one year later. A possible "third variable" explanation may be a different degree of experience with SAB across gender. Thus, the path from SAB to SDQ may be even stronger for youth who have more personal experience of violence (i.e., boys), consistent with higher scores for externalizing problems among boys (Taylor et al., 2016). We are unable to test this explanation in the present report; thus, this is a question for future research. The fact that only the pathway from girls' behavior problems to experience with SAB was significant requires reassessment of assumptions about the impact of girls' adjustment problems in a social ecology

of political violence. For both boys and girls, their own adjustment problems put them at greater risk for experiencing higher levels of SAB over time.

However, the explanations for reciprocal effects or effects regarding the impact of child adjustment on experience with SAB are both speculative and lack the elucidation of specific explanatory processes, including mechanisms that may account for the possible differences in effects for girls and boys. For example, emotional insecurity about the family (Cummings et al., 2012) or community (Cummings et al., 2011) have repeatedly been identified as mediating the effects of experience with SAB on child and adolescent adjustment (Cummings et al., 2014). Social identity has been demonstrated as a moderator of adolescent adjustment in contexts of political violence (Merrilees et al., 2013), and may also factor in these relations. However, questions remain about what mediating processes may account for the influence of adolescent adjustment problems on experience with SAB, and furthermore, the processes that account for such relations being found for both boys and girls.

One possibility is adolescent's adjustment problems relate to greater actual involvement in the perpetration of sectarian community violence. For example, adolescents with adjustment problems may be more likely to put themselves in situations where political violence is occurring, which may reflect with poorer decision making, and/or emotion or behavior regulation problems. This may hold for youth with externalizing or internalizing symptoms. Adolescents with externalizing problems may seek out contexts of conflict or may perceive social situations related to political violence as more hostile and threatening. Adolescents with internalizing symptoms and anxiety may be hypervigilant in seeking out indicators of threat thereby increasing their exposure. To follow up on these issues, another

direction is specifically asking adolescents about their role in sectarian community violence, including as a victim, witness, or perpetrator.

The clinical significance of the findings pertains to the provision of more comprehensive and complex causal models for the origins of adolescent's adjustment problems in contexts of political violence. Specifically, one implication of these findings is that decreasing adolescent's exposure to political violence may serve to decrease the incidence of adjustment problems in adolescents, especially for boys. Moreover, given the bidirectional relations found, another implication is that programs to reduce adjustment problems in adolescents may also serve to reduce their risk to future experience with SAB. However, optimal programs to ameliorate adolescent adjustment problems are likely to require efforts beyond reducing experience with SAB, but also may require efforts towards addressing a wide range of other problems associated with adjustment problems in neighborhoods characterized by social deprivation (e.g., educational opportunity), which have the highest incidences of political violence (Shirlow & Murtagh, 2006). Thus, the clinical problems of adolescents and problems of political violence may be intertwined in their causal pathways, with both meriting attention towards mutually ameliorating the problems faced by each, reflecting interventions that address multiple levels of the social ecology.

Certain limitations should be acknowledged. Most children ranged between 11 and 17 years of age, reflecting our interest in studying an age group at risk for becoming observers and participants of sectarian conflict. Although evidence is limited on the relative vulnerability of adolescents as a function of age to experience with SAB (e.g., Taylor et al., 2016), future research should further examine a wider age range to understand the relative vulnerability of adolescents in social ecological contexts of political violence. Additionally, distinct forms and

expressions of sectarian community violence may vary widely across cultures (Cummings et al., 2009), so that the generalizability of these assessments to other cultural contexts remains to be demonstrated. Moreover, as noted above, “third variable effects” in the bidirectional relations between exposure to political violence and youth maladjustment merit attention. As another example, when antisocial behavior precedes exposure to political violence, a key feature could be accounted for by increased involvement in deviant peer associations. As further example, elements of the macro-system (e.g., political discord between Catholics and Protestants) may possibly contribute to both variables (Townsend et al., 2016). Finally, although notions of causal relations between “adolescent adjustment effects” and “sectarian community violence effects” cannot be tested in the current study, the directionality over time can be assessed within the longitudinal design. Thus, the present approach provides a possible approximation to testing bidirectional relations.

This more comprehensive approach, reflecting a dynamic perspective on the impact of sectarian community violence, can open up more informed debate about the causes and consequences of political violence. The areas selected were all interfaced and socially deprived, but with variation in past historic violence and current levels of sectarianism. The goal was to ensure variability in experience with SAB among youth in relatively similar other circumstances. Experience with SAB does not change in any predictable way over time; there was not a consistent pattern of increasing or decreasing exposure with time or age. This can be regarded as a strength of the approach. That is, whereas other studies of political violence have typically measured past political violence experiences, our study captured dynamic variation in intergroup violence based on four waves of data collection. The present results move the discussion beyond recognizing the need to intervene for the sake of being sensitive to the consequences of youth’s

well-being, emphasizing the need to intervene early to prevent negative feedback loops involving increased risk (Cummings, Davies, & Campbell, 2000). These findings offer promising directions towards better conceptualizations of causes and consequences of political violence, providing bases for viewing the welfare and wellbeing of the adolescents in settings of protracted conflict.

References

- Ajdukovic, D., & Biruski, D. C. (2008). Caught between the ethnic sides: Children growing up in a divided post-war community. *International Journal of Behavioral Development*, 32(4), 337-347. doi: 10.1177/0165025408090975
- Akaike, H. (1974). A new look at the statistical model identification. *Automatic Control, IEEE Transactions on*, 19(6), 716-723. doi: 10.1109/TAC.1974.1100705
- Akaike, H. (1987). Factor analysis and AIC. *Psychometrika*, 52, 317-332.
doi: 0.1007/BF02294359
- Abayomi, K., Gelman, A., & Levy, M. (2008). Diagnostics for multivariate imputations. *Journal of the Royal Statistical Society: Series C (Applied Statistics)*, 57(3), 273-291.
- Barber, B. K. (2013). Annual research review: The experience of youth with political conflict—Challenging notions of resilience and encouraging research refinement. *Journal of Child Psychology and Psychiatry*, 54, 461-473. doi: 10.1111/jcpp.12056.
- Barber, B. K., & Schluterman, J. M. (2008). An overview of the empirical literature on adolescents and political violence. *Adolescents and War: How Youth Deal with Political Violence: How Youth Deal with Political Violence*, 35.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological bulletin*, 107(2), 238. doi: org/10.1037/0033-2909.107.2.238
- Betancourt, T. S. & Khan, K. T. (2008). The mental health of children affected by armed conflict: Protective processes and pathways to resilience. *International Review of Psychiatry*, 20(3), 317-328. doi: org/10.1080/09540260802090363

- Betancourt, T. S., Borisova, I. I., Williams, T. P., Brennan, R. T., Whitfield, T. H., de la Soudiere, M., et al. (2010). Sierra Leone's former child soldiers: A follow-up study of psychosocial adjustment and community reintegration. *Child Development, 81*, 1077–1095. doi: 10.1080/09540260802090363
- Betancourt, T. S., McBain, R., Newnham, E. A., & Brennan, R. T. (2013). Trajectories of internalizing problems in war-affected Sierra Leonean youth: Examining conflict and postconflict factors. *Child Development, 84*(2), 455-470. doi:10.1016/j.ejogrb.2016.07.487
- Betancourt, T. S., McBain, R., Newnham, E. A., & Brennan, R. T., Akinsulure-Smith, A. M., Brennan, R. T., Weisz, J. R., & Hansen, N. B. et al. (2014). A behavioral intervention for war-affected youth in Sierra Leone: A randomized control trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 53*(12), 1288-1297.
- Betancourt, T. S., Meyers-Ohki, S. E., Charrow, A. P., & Tol, W. A. (2013). Interventions for children affected by war: an ecological perspective on psychosocial support and mental health care. *Harvard Review of Psychiatry, 21*(2), 70-91. doi: 10.1097/HRP.0b013e318283bf8f
- Browning, C. R., Burrington, L. A., Leventhal, T., & Brooks-Gunn, J. (2008). Neighborhood structural inequality, collective efficacy, and sexual risk behavior among urban youth. *Journal of Health and Social Behavior, 49*, 269–285.
- Boxer, P., Huesmann, L. R., Dubow, E. F., Landau, S. F., Gvirsman, S. D., Shikaki, K., & Ginges, J. (2013). Exposure to violence across the social ecosystem and the development of aggression: A test of ecological theory in the Israeli-Palestinian conflict. *Child Development, 84*(1), 163-177. doi: 10.1111/j.1467-8624.2012.01848.x

- Cairns, E., & Darby, J. (1998). The conflict in Northern Ireland: Causes, consequences, and controls. *American Psychologist*, 53, 754-760. doi.org/10.1037/0003-066X.53.7.754
- Cairns, E., & Dawes, A. (1996). Ethnic and political violence – A commentary. *Child Development*, 67(1), 129-139. doi: 10.1111/j.1467-8624.1996.tb01724.x
- Cummings, E. M., Davies, P. T., & Campbell, S. B. (2000). *Developmental psychopathology and family process: Theory, research, and clinical implications*. New York: Guilford Press.
- Cummings, E. M., George, M. R. W., McCoy, K. P., & Davies, P. T. (2012). Interparental conflict in kindergarten and adolescent adjustment: Prospective investigation of emotional security as an explanatory mechanism. *Child Development*, 83(5), 1703-1715. doi: 10.1111/j.1467-8624.2012.01807.x
- Cummings, E. M., Goeke-Morey, M. C., Merrilees, C. E., Taylor, L. K., & Shirlow, P. (2014). A Social–Ecological, Process-Oriented Perspective on Political Violence and Child Development. *Child Development Perspectives*, 8(2), 82-89.
- Cummings, E. M., Goeke-Morey, M. C., Schermerhorn, A. C., Merrilees, C. E., & Cairns, E. (2009). Children and political violence from a social ecological perspective: Implications for research on children and families in Northern Ireland. *Clinical Child and Family Psychology Review*, 12(1), 16-38. doi: 10.1007/s10567-009-0041-8
- Cummings, E. M., Merrilees, C. E., Schermerhorn, A. C., Goeke-Morey, M. C., Shirlow, P., & Cairns, E. (2011). Longitudinal pathways between political violence and child adjustment: The role of emotional security about the community in Northern Ireland. *Journal of Abnormal Child Psychology*, 39, 213-224. doi: 10.1007/s10802-010-9457-3
- Cummings, E. M., Merrilees, C. M., Schermerhorn, A. C., Goeke-Morey, M. C., Shirlow, P., & Cairns, E. (2010). Testing a social ecological model for relations between political

violence and child adjustment in Northern Ireland. *Development and Psychopathology*, 22, 405-418.

Donders, A. R. T., van der Heijden, G. J., Stijnen, T., & Moons, K. G. (2006). Review: a gentle introduction to imputation of missing values. *Journal of Clinical Epidemiology*, 59(10), 1087-1091. doi:10.1016/j.jclinepi.2006.01.014

Dubow E. F., Boxer, P., Huesmann, L. R., Shikaki, K., Landau, S., Gvirsman, S. D., & Ginges, J. (2010). Exposure to conflict and violence across contexts: Relations to adjustment across Palestinian children. *Journal of Clinical Child and Adolescent Psychology*, 39(1), 103-116. doi: 10.1080/15374410903401153

Dubow, E. F., Huesmann, L. R., & Boxer, P. (2009) A social-cognitive-ecological framework for understanding the impact of exposure to persistent ethnic-political violence on children's psychosocial adjustment. *Clinical Child and Family Psychology Review*, 12(2), 113-126. doi: 10.1007/s10567-009-0050-7

Enders, C. K., & Bandalos, D. L. (2001). The relative performance of full information maximum likelihood estimation for missing data in structural equation models. *Structural Equation Modeling*, 8(3), 430-457.

Fowler, P. J., Tompsett, C. J., Braciszewski, J. M., Jacques-Tiura, A. J., & Baltes, B. B. (2009). Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents. *Development and psychopathology*, 21(01), 227-259. doi: 10.1017/S0954579409000145

Gerbing, D. W., & Anderson, J. C. (1985). The effects of sampling error and model characteristics on parameter estimation for maximum likelihood confirmatory factor analysis. *Multivariate Behavioral Research*, 20(3), 255-271.

http://dx.doi.org/10.1207/s15327906mbr2003_2

Goeke-Morey, M. C., Cummings, E., Ellis, K., Merrilees, C., Schermerhorn, A., Shirlow, P., & Cairns, E. (2009). The differential impact on children of inter- and intra-community violence in Northern Ireland. *Journal of Peace Psychology*, 15, 367-383.

<http://dx.doi.org/10.1080/10781910903088932>

Goodman, K. L., De Los Reyes, A., & Bradshaw, C. P. (2010). Understanding and using informants' reporting discrepancies of youth victimization: A conceptual model and recommendations for research. *Clinical Child and Family Psychology Review*, 13, 366-383. doi: 10.1007/s10567-010-0076-x

Goodman, R. (1997). The strengths and difficulties questionnaire: A research note. *Child Psychology & Psychiatry & Allied Disciplines*, 38, 581-586. doi: 10.1111/j.1469-7610.1997.tb01545.x

Goodman, R., & Scott, S. (1999). Comparing the Strengths and Difficulties Questionnaire and the Child Behavior Checklist: is small beautiful? *Journal of abnormal child psychology*, 27(1), 17-24. doi: 10.1023/A:1022658222914

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55.

Jordans, M. J. D., Tol, W. A., Komproe, I. H., & de Jong, J. V. T. M. (2009). Systematic review of evidence and treatment approaches: Psychosocial and mental health care for children in war. *Child and Adolescent Mental Health*, 14(1), 2-14. doi: 10.1111/j.1475-3588.2008.00515.x

- Kashy, D. A., & Donnellan, M. B. (2008). Comparing MLM and SEM approaches to analyzing developmental dyadic data: Growth curve models of hostility in families. *Modeling dyadic and interdependent data in the developmental and behavioral sciences*, 165-190.
- Kronenberg, M. E., Hansel, T. C., Brennan, A. M., Osofsky, H. J., Osofsky, J. D., & Lawrason, B. (2010). Children of Katrina: Lessons learned about postdisaster symptoms and recovery patterns. *Child Development*, 81, 1241–1259. doi: 10.1111/j.1467-8624.2010.01465.x
- Ladd, G. W., & Cairns, E. (1996). Children: ethnic and political violence. *Child Development*, 67(1), 14-18. doi: 10.1111/j.1467-8624.1996.tb01715.x
- Lynch, M. (2003). Consequences of children's exposure to community violence. *Clinical Child and Family Psychology Review*, 6(4), 265-274.
doi:10.1023/B:CCFP.00000006293.77143
- Margolin, G., & Gordis, E. B. (2000). Effects of family and community violence on children. *Annual Review of Psychology*, 51, 445-479. DOI: 10.1146/annurev.psych.51.1.445
- Masten, A. S. (2014). Global perspectives on resilience in children and youth. *Child Development*, 85(1), 6-20. doi: 10.1111/cdev.12205
- Masten, A., & Narayan, A. J. (2012). Child development in the context of disaster, war, and terrorism: Pathways of risk and resilience. *Annual Review of Psychology*, 63, 227–257.
doi: 10.1146/annurev-psych-120710-100356
- Merrilees, C.E., Cairns, E., Taylor, L. K., Goeke-Morey, M. C., Shirlow, P., & Cummings, E. M. (2013). Social identity and youth aggressive and delinquent behaviors in a context of political violence. *Political Psychology*, 34 (5), 695-711. doi: 10.1111/pops.12030
- Mulcahy, A. (2008). The police service of Northern Ireland. *Handbook of Policing*, 2, 204-220.

- Newsom, J. T. (2015). *Longitudinal structural equation modeling: A comprehensive introduction*. London: Routledge.
- Northern Ireland Neighborhood Information Service (NINIS) (2011). Multiple deprivation ratings by ward, retrieved from <http://www.ninis.nisra.gov.uk/>
- NISRA (2011). The Northern Ireland Census 2011. Belfast: NISRA.
- Shafer, J. L., & Graham, J. W. (2002). Missing data: our view of the state of the art. *Psychological Methods*, 7(2), 147. <http://dx.doi.org/10.1037/1082-989X.7.2.147>
- Shirlow, P., & Murtagh, B. (2006). *Belfast: Segregation, violence and the city*. Pluto Press.
- Taylor, L. K., Merrilees, C. E., Campbell, A., Shirlow, P., Cairns, E., Goeke-Morey, M. C., Schermerhorn, A. C., & Cummings, E. M. (2011). Sectarian and nonsectarian violence: Mothers' appraisals of political conflict in Northern Ireland. *Peace and Conflict: Journal of Peace Psychology*, 17, 343-366. doi.org/10.1080/10781919.2011.610199
- Taylor, L. K., Merrilees, C. E., Goeke-Morey, M. C., Shirlow, P., & Cummings, E. M. (2016). Trajectories of adolescent aggression and family cohesion: The potential to perpetuate or ameliorate political conflict. *Journal of Clinical Child and Adolescent Psychology*, 45(2), 114-128. doi.org/10.1080/15374416.2014.945213
- Townsend, D.L., Taylor, L.K., Furey, A., Merrilees, C E., Goeke-Morey, M C., Shirlow, P., & Cummings, E.M. (2016). Measuring the macrosystem in postaccord Northern Ireland: A social-ecological approach. *Peace and Conflict: Journal of Peace Psychology*, 22(3), 282-286. doi.org/10.1037/pac0000185

Footnotes

¹We also conducted a latent factor model. For the latent factor analysis, the manifest variables for the latent variable SAB were mother's report of SAB and child's report of SAB, and the manifest variables for the latent variable SDQ were mother's report of the total problem score and child's report of the total problem score. However, because the model fit was not adequate for a latent factor model, we used path analysis with manifest variables, based on mother's report of SAB and child's report of SDQ.

²We also considered age as a control variable, but all the regression coefficients for age were not significant, therefore we used the model without age variable.

Table 1

Descriptive Statistics of Sectarian Antisocial Behavior and Adjustment Problem.

Variables	1	2	3	4	5	6	7	8
All youth								
1. SAB_T1 ^m	1.00							
2. SAB_T2 ^m	0.15**	1.00						
3. SAB_T3 ^m	0.32**	0.19**	1.00					
4. SAB_T4 ^m	0.18**	0.01	0.52**	1.00				
5. SDQ_T1 ^c	0.01	0.04	0.08	0.11**	1.00			
6. SDQ_T2 ^c	0.08	0.37**	0.03	-0.01	0.21**	1.00		
7. SDQ_T3 ^c	0.01	0.04	0.25**	0.23**	0.26**	0.27**	1.00	
8. SDQ_T4 ^c	0.11*	0.03	0.26**	0.30**	0.41**	0.18**	0.62**	1.00
<i>M</i>	2.61	2.07	3.82	1.64	11.13	9.08	9.93	10.13
<i>SD</i>	6.04	5.82	8.02	5.51	5.83	5.41	5.02	5.16
Boy group								
1. SAB_T1 ^m	1.00							
2. SAB_T2 ^m	0.21**	1.00						
3. SAB_T3 ^m	0.36**	0.20**	1.00					
4. SAB_T4 ^m	0.21**	-0.03	0.39**	1.00				
5. SDQ_T1 ^c	-0.04	0.06	-0.03	0.09	1.00			
6. SDQ_T2 ^c	0.12*	0.28**	0.03	0.01	0.18**	1.00		
7. SDQ_T3 ^c	0.06	0.12	0.18**	0.14	0.11	0.26**	1.00	
8. SDQ_T4 ^c	0.14*	0.08	0.23**	0.21**	0.35**	0.14	0.46**	1.00
<i>M</i>	2.76	1.46	3.71	1.34	11.83	9.15	10.20	9.73
<i>SD</i>	6.20	4.78	8.11	5.20	5.54	4.95	4.41	4.49
Girl group								
1. SAB_T1 ^m	1.00							
2. SAB_T2 ^m	0.12*	1.00						
3. SAB_T3 ^m	0.26**	0.21**	1.00					
4. SAB_T4 ^m	0.18*	0.09	0.33**	1.00				
5. SDQ_T1 ^c	0.05	0.05	0.18**	0.17*	1.00			
6. SDQ_T2 ^c	0.04	0.43**	0.03	-0.05	0.24**	1.00		
7. SDQ_T3 ^c	-0.05	0.03	0.12	0.27**	0.35**	0.28**	1.00	
8. SDQ_T4 ^c	0.07	0.02	0.22**	0.22**	0.46**	0.21**	0.45**	1.00
<i>M</i>	2.47	2.64	2.52	0.39	10.47	9.03	8.71	9.20
<i>SD</i>	5.88	6.61	6.81	1.76	6.01	5.81	4.37	4.76

Note: SAB = Sectarian Antisocial Behavior; SDQ = Adjustment Problem. ^c = child report; ^m = mother report.

* $p < 0.05$; ** $p < 0.01$

Table 2

Unstandardized Coefficients (Standard Error) and Significant Levels for the Overall

Bidirectional Model and Multiple Group Bidirectional Model

Variables	Unstandardized (standard error)	Standardized	<i>P</i>
Overall Bidirectional Model			
SAB_T1 ^m → SAB_T2 ^m / SAB_T2 ^m → SAB_T3 ^m / SAB_T3 ^m → SAB_T4 ^m	0.25 (0.02)	0.28	0.00
SAB_T1 ^m → SAB_T3 ^m / SAB_T2 ^m → SAB_T4 ^m	0.33 (0.04)	0.30	0.00
SAB_T1 ^m → SAB_T4 ^m	0.11 (0.05)	0.18	0.02
SDQ_T1 ^c → SDQ_T2 ^c / SDQ_T2 ^c → SDQ_T3 ^c / SDQ_T3 ^c → SDQ_T4 ^c	0.34 (0.02)	0.36	0.00
SDQ_T1 ^c → SDQ_T3 ^c / SDQ_T2 ^c → SDQ_T4 ^c	0.15 (0.03)	0.15	0.00
SDQ_T1 ^c → SDQ_T4 ^c	0.25 (0.03)	0.27	0.00
SDQ_T1 ^c → SAB_T2 ^m / SDQ_T2 ^c → SAB_T3 ^m / SDQ_T3 ^c → SAB_T4 ^m	0.09 (0.03)	0.09	0.00
SAB_T1 ^m → SDQ_T2 ^c / SAB_T2 ^m → SDQ_T3 ^c / SAB_T3 ^m → SDQ_T4 ^c	0.07 (0.02)	0.08	0.00
SAB_T1 ^m ↔ SDQ_T1 ^c	0.59 (1.42)	0.02	0.68
SAB_T2 ^m ↔ SDQ_T2 ^c	12.32 (1.50)	0.39	0.00
SAB_T3 ^m ↔ SDQ_T3 ^c	7.03 (1.33)	0.17	0.00
SAB_T4 ^m ↔ SDQ_T4 ^c	1.96 (0.77)	0.07	0.01
Multiple Group Bidirectional Model			
Boy group			
SAB_T1 ^m → SAB_T2 ^m / SAB_T2 ^m → SAB_T3 ^m / SAB_T3 ^m → SAB_T4 ^m	0.26 (0.03)	0.29	0.00
SAB_T1 ^m → SAB_T3 ^m / SAB_T2 ^m → SAB_T4 ^m	0.37 (0.06)	0.31	0.00
SAB_T1 ^m → SAB_T4 ^m	0.14 (0.07)	0.21	0.06
SDQ_T1 ^c → SDQ_T2 ^c / SDQ_T2 ^c → SDQ_T3 ^c / SDQ_T3 ^c → SDQ_T4 ^c	0.32 (0.03)	0.34	0.00
SDQ_T1 ^c → SDQ_T3 ^c / SDQ_T2 ^c → SDQ_T4 ^c	0.09 (0.04)	0.08	0.04
SDQ_T1 ^c → SDQ_T4 ^c	0.28 (0.05)	0.31	0.00
SDQ_T1 ^c → SAB_T2 ^m / SDQ_T2 ^c → SAB_T3 ^m / SDQ_T3 ^c → SAB_T4 ^m	0.09 (0.04)	0.09	0.02
SAB_T1 ^m → SDQ_T2 ^c / SAB_T2 ^m → SDQ_T3 ^c / SAB_T3 ^m → SDQ_T4 ^c	0.10 (0.02)	0.13	0.00
SAB_T1 ^m ↔ SDQ_T1 ^c	-1.13 (1.94)	-0.032	0.56
SAB_T2 ^m ↔ SDQ_T2 ^c	5.97 (1.47)	0.19	0.00
SAB_T3 ^m ↔ SDQ_T3 ^c	8.32 (1.85)	0.19	0.00

SAB_T4 ^m ↔ SDQ_T4 ^c	3.40 (1.32)	0.12	0.01
Girl group			
SAB_T1 ^m → SAB_T2 ^m / SAB_T2 ^m → SAB_T3 ^m / SAB_T3 ^m → SAB_T4 ^m	0.21 (0.03)	0.24	0.00
SAB_T1 ^m → SAB_T3 ^m / SAB_T2 ^m → SAB_T4 ^m	0.33 (0.04)	0.32	0.00
SAB_T1 ^m → SAB_T4 ^m	0.12 (0.06)	0.17	0.03
SDQ_T1 ^c → SDQ_T2 ^c / SDQ_T2 ^c → SDQ_T3 ^c / SDQ_T3 ^c → SDQ_T4 ^c	0.36 (0.03)	0.39	0.00
SDQ_T1 ^c → SDQ_T3 ^c / SDQ_T2 ^c → SDQ_T4 ^c	0.18 (0.03)	0.18	0.00
SDQ_T1 ^c → SDQ_T4 ^c	0.23 (0.04)	0.24	0.00
SDQ_T1 ^c → SAB_T2 ^m / SDQ_T2 ^c → SAB_T3 ^m / SDQ_T3 ^c → SAB_T4 ^m	0.10 (0.03)	0.08	0.00
SAB_T1 ^m → SDQ_T2 ^c / SAB_T2 ^m → SDQ_T3 ^c / SAB_T3 ^m → SDQ_T4 ^c	0.04 (0.02)	0.05	0.10
SAB_T1 ^m ↔ SDQ_T1 ^c	2.08 (2.06)	0.06	0.31
SAB_T2 ^m ↔ SDQ_T2 ^c	20.00 (3.03)	0.64	0.00
SAB_T3 ^m ↔ SDQ_T3 ^c	4.86 (1.85)	0.12	0.01
SAB_T4 ^m ↔ SDQ_T4 ^c	0.39 (0.77)	0.02	0.61

Note: SAB = Sectarian Antisocial Behavior; SDQ = Adjustment Problem. . ^c = child report; ^m = mother report. Confidence interval can be calculated as (unstandardized coefficients) ± 1.96 × (standard error).

* $p < 0.05$. ** $p < 0.01$.

Figures

Figure 1. Overall Bidirectional Model of the One-year Lagged Effects of Sectarian Antisocial Behavior (SAB) and Total Adjustment Problems (SDQ) Over Four Years. $*p < .05$; $**p < .01$.

Figure 2. Multiple Group Bidirectional Model Fit Separately for Girls (in **bold**) and Boys (unbolded) of the One-year Lagged Effects of Sectarian Antisocial Behavior (SAB) and Total Adjustment Problems (SDQ) Over Four Years. Within-wave correlations between Study Variables along with Two- and Three-year Auto-regressive paths within Each Construct are omitted for Readability. $*p < .05$; $**p < .01$ (these values are provided in the table).



